NARRATIVE REPORT
MUSCATATUCK NATIONAL WILDLIFE REFUGE
1971

DEPARTMENT OF THE INTERIOR
BUREAU OF SPORT FISHERIES AND WILDLIFE
MUSCATATUCK NATIONAL WILDLIFE REFUGE
SEYMOUR, INDIANA

INDIAWA BAT

# WATERFOWL

(1)	Weeks of reporting period												
Species	1	2	3	4	5	6	7	8	9	10			
wans:									i i				
Whistling Trumpeter									-	-			
eese:	-		1										
Canada													
Cackling				6	16	16	37	37					
Brant					1				-				
White-fronted		-											
Snow	0												
Blue	-		1					3					
Other									2	2			
ucks:		-											
Mallard	3	1	40			-	400						
Black	3	4.0	40	50	10	80 12	100 15	110	130	30			
Gadwall				-		/	- 13	13	~~~				
Baldpate					6	/ 10	20	20	25	40			
Pintail	-	1			1 2	/ /	1	1	1	10			
Green-winged teal			10	5	15	10	10	10	10	15			
Blue-winged teal	12	80	90	70	60	70	7/0	70	60	15			
Cinnamon teal													
Shoveler				1	1.	6	6	6	6	6			
Wood	650	650	600	600	600	600	500	500	500	400			
Redhead													
Ring-necked										15			
Canvasback										1 12			
Scaup													
Goldeneye													
Bufflehead				1									
Ruddy													
Other									200				
oot:			20	20	20	20	25	30	40	50			

# (Rev. March 1953) WATERFOWI (Continuation Sheet)

7) Worth Production:	W	eeks	of r	: (3) : (4) : Estimated : Production							
Creation	11	12	Waterf	11/1	Sent on	16	: 17 :	18			Estimate
Species :	W Samuera.	12	1.60010	: 14 :	1/2	10	1 1	TO	: days use	: seen :	total
Swans: Whistling	,	41		4.	8	8	8	8	518		
	- 10 8 WH	14	14.	14_		0	<u>G</u>	0		+	
Trumpeter	Sentative		eyess		1111111111	a pand	UB 100	08818 1	Tact amoutu o	OUTEPS	
Geese: Canada		Trumpact.		BLOC	d count	a shou	Ld be	made on	PRO OL DOLG ST		
	EAST PERSON	UTEUFEL	a. a. (12)	but gr	red lbas	100	objerv	ecto la	840	SE ON TR	DIEM
Cackling Brant						-					
	V2C=258C6 2	a piri and	0.0030	18 X U	Them Of	days	Diese		V. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	-	
White-fronted											
Snow											
Blue boldfoot Lawron	2	SVENCER	2	2	2	2	2	2	154		
Other	E-0								The State of the S		
ducks:	0										
Mallard	180	250	250	350	350	350	350	400	22,834		
Black	30	60	68	75	75	75	75	100	4,634	ole sport	C De
Gadwall	10	20	20	3.0	20	10	10	1000	1.036	B COPPLE	E cue
Baldpate	50	75	75	50	50	20	20	10	3,297		
Pintail	20	25	25	10	10	STIGITS	Te Kel	TOGR BY	812		
Green-winged teal	10	10	10	50	30				1,330		
Blue-winged teal	10								1.219		
Cinnamon teal											
Shoveler					Report	ag pa			266		
Wood	400	400	400	400	200	150	150	50	54.250		
Redhead	12								84		
Ring-necked									105		
Canvasback	100.47				Princi	pal ne	sting	17688			
Scaup											
Goldeneye	-5742			1							
Bufflehead											
Ruddy		7			Princi	bal fe	eding.	areas .			
Other		3.0									
Coots:	Pasir Bimba	TOTAL	I gwagii	tion					DMHARY.		
	50	50	50	20	20	10	10	10	3,135		
					(over)						
					lover)	1				1	

(5) Total Days Use :	(6) Peak Number : Tot	(7) tal Production	SUMMARY
Swans 518	14	0	Principal feeding areas Shorebird areas
Geese 994 :	37	0	
Ducks 92.897	965	0	Principal nesting areas
Coots 3,135 :	:	0,00	Reported by
(1) Species:	In addition to t		1 7534, Wildlife Refuges Field Manual)  1 on form, other species occurring on refuge during the
that options	In addition to treporting period	d should be adde	50 70 20 30 3.297
that spirit	In addition to treporting period	d should be adde species of local	d on form, other species occurring on refuge during the ed in appropriate spaces. Special attention should be and national significance.
<ul><li>(1) Species:</li><li>(2) Weeks of</li></ul>	In addition to treporting period given to those s	d should be adde species of local ge refuge popula	d on form, other species occurring on refuge during the ed in appropriate spaces. Special attention should be and national significance.
<ul><li>(1) Species:</li><li>(2) Weeks of Reporting Period:</li><li>(3) Estimated Waterfow</li></ul>	In addition to the reporting period given to those so Estimated average weekly pure Estimated number sentative breeding.	d should be addespecies of local ge refuge populations x nurse of young produing areas. Broo	d on form, other species occurring on refuge during the ed in appropriate spaces. Special attention should be and national significance.
<ul> <li>(1) Species:</li> <li>(2) Weeks of Reporting Period:</li> <li>(3) Estimated Waterfow Days Use:</li> </ul>	In addition to the reporting period given to those so Estimated average weekly pure Estimated number sentative breeding.	d should be added species of local ge refuge populations x nurse of young producing areas. Brooking habitat. E	d on form, other species occurring on refuge during the ed in appropriate spaces. Special attention should be and national significance.  Attions.  The actual counts on represent the counts of the counts should be made on two or more areas aggregating astimates having no basis in fact should be omitted.
<ul> <li>(1) Species:</li> <li>(2) Weeks of Reporting Period:</li> <li>(3) Estimated Waterfow Days Use:</li> <li>(4) Production:</li> </ul>	In addition to the reporting period given to those so the second	d should be addespecies of local ge refuge populations x nurse of young produing areas. Brooking habitat. Eta recorded under the state of the state	d on form, other species occurring on refuge during the ed in appropriate spaces. Special attention should be and national significance.  Attions.  The actual counts on represent actual counts on represed counts should be made on two or more areas aggregating actuals should be omitted.

HOMEN CO. sells box 1

# MIGRATORY BIRDS

(other than waterfowl)

Refuge Muscatatuck NWR

Months of September 1 toDecember 31 195 71

(1)		2)		3)		4)		(5)		(6)
Species	First	Seen	Peak N	umbers	Last	Seen	Number	Production		Total
Common Name	Number	Date	Number	Date	Number	Date	Colonies	Total # Nests	Total Young	Estimate Number
I. Water and Marsh Birds Sandhill cranes	26	11-5-71	250	12-4-71	65	12-17-71		9	0	400
American egret	111	9-17-71	1	9-17-71	1	9-17-71		0	0	1
Green Heron	5	9-4-71	25	9-27-71	1 1 2	10-1-71	71/6 Do	0	0	80
Great Blue Heron	na 4 12	1-5-71	5	9-21-71	1	12-16-71	927 Harris	0	0	5
I Shenshinds Culls and										
I. <u>Shorebirds</u> , <u>Gulls and</u> Terns:										
Terns: Wilson Snipe	12	9-22-71	12	9-22-71	1	12-17-71		0	0	350
Terns:		9-22-71 9-15-71	12	9-22 <b>-71</b> 9-15 <b>-71</b>	1	12-17-71 9-15-71	<	0	0	350 30
Terns: Wilson Snipe	12	100 200				4 - 1 - 21	4			
Terns: Wilson Snipe Sora Rail	12	9-15-71	1	9-15-71	1	9-15-71	<	0	0	30
Terns: Wilson Snipe Sora Rail Greater yellowlegs	12	9-15-71 9-22-71	30	9-15-71 9-29-71	30	9-15-71 9-29-71	~	0	0	30 60
Terns: Wilson Snipe Sora Rail Greater yellowlegs Herring gull	12 1 8 1	9-15-71 9-22-71 9-18-71	30	9-15-71 9-29-71 9-18-71	1 30 1	9-15-71 9-29-71 9-18-71	<b>\</b>	0	0 0	30 60 1

(over)

	(1)		(2)		(3)		4)		(5)	1	(6)
III.	Doves and Pigeons: Mourning dove	10	9-2-71	300	11-5-71	20	12-29-71	0	0	0	8,000
	White-winged dove					7 1					0
IV.	Predaceous Birds: Golden eagle		7.07.4				a-11-12				
	Duck hawk	1	12-10-71	1	12-10-71	1	12-10-71	0	0	0	30
	Horned owl		p 12-11	1.1	in 15-17		1-1-W				
	Magpie Raven Crow	7	9-6-71	30	11-10-71	6	12-30-71	0	0	0	200
	Shorsha av 14 blid										
							Reported	by	1		

#### INSTRUCTIONS

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. <u>Doves and Pigeons</u> (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

Estimated total number of the species using the refuge <u>during the period</u> concerned.

INT .- DUP. SEC., WASH., D.C.

# Waterfowl Hunter Kill Survey

Refuge	[mantakunit	
--------	-------------	--

Year 198 71

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est.No. Hunters	(9) Est. Total Kill
	eran unic	ergoup r	(THE RETUGE IS CLOSED TO WATERFOWL HERTING)	Terret santaed moralita		lectra to to		
	,		to the state of the payon to the state of th		E. 1707	li len		
	Special Control	1 2 10		, (ái) i	men hanj da al 13 Ja	e, begn		
			*	42.11	er e inno 'od	in 100	(t)	
	grifu 100	h yarow		To a res	in lates and applications	*= 1, Ped 3	eā (H) or	
			TOTAL SECTION OF THE	0.1 51.	e teolymy al	ginea Li	esi (r)	
		_84rc8			-			
			(over)		1=			

## INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Greenwinged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent. Column 9 =  $\frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}$ .

# UPLAND GAME BIRDS

Refuge Muscatatuck NWR Months of Sept. 1 to c. 31 , 19 71

(1) Species	(2) Density		(3) Young oduced	aul di asi	(4) Sex Ratio		(5) Remove		(6) Total	(7) Remarks		
Common Name	Cover types, total acreage of habitat	Acres Per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Resstocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.		
ob white	6,000 acres of fore edge green legume agricultural fields and reverting agricultural lands		not eno	N.		00.18 000.2 83.1.3	NA **	NA	400			
aeugo e	o stat stulo-l	1 6 7	eado (K	50 920.0	tily to wild	isun i. 1	g sai	fare Exercis	millo pidi			
=hylor	Total Park Mary L	da egire da egire	Fe V	man y	rogates diss flor (ar go) t golfsagin	el 1	ed bus f seu	194 197	Lodiene. Permanial Permania	- 20 M (10)		
anglata	alA .vev:00 il 007.	on ass	i ina m supen y	ganga San sh	stermine you on agt speci	in us uspa	used Lafox	ioni Jasa	em edpolini Eduar Tando	: ESSE/ESSE (* )		
				.bs	should be us	De-	evon	bol se	, ads cs el	daoilggs acaus no +1. *		
									7			
										3		

#### INSTRUCTIONS

#### Form NR-2 - UPLAND GAME BIRDS\*

(1) SPECIES: Use correct common name.

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of

sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding nabitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\*Only columns applicable to the period covered should be used.

Refuge Muscatatuck NWR

Calendar Year 1971

(1) Species	Species Density				no <b>n</b> s (j†)	ls			(5) sses	In	(6) troductions	(7) Estimated Total Refuge Population		(g) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-	Sold	Sold For Research	Predation	Predation	Winter	Number	Source of the same	At period of Greatest use	As of Dec.	
hite tail deer	6,000 wood bottomland	30	IA	NA	¢A.	NA	Not	en	afily q	ata	oon saanada	120	120	
HITCE CAIL GOOT	and upland hardwood	artevitus	3	137	Ye	in 5	owl.	1.80	basi	D ,4	maws solities			
	Wildife Management Beries	listed in	ali	O STY	94	C 1,5	abr	sjö	. 531	, 92	grase prair			
	ould be based on actual obse	in bedition	Us	297	SI	, 9.	dia	8.00	sten	bea	should be u			
asta s	dwas to sela pus rean poura	SAFASA-1	91	809	31	pun	1931	oti	n) of	Hipo	da angun bas da angun an			
	efngë.	t on been	07	3a	yor	10 1	des	er 1	ajoi ,	es d'ac	MeS : EIOU	YOUNG PHO	(変)	
	d during the year.	ry renow	38	ce.	ac	at :	eda	EFET	[6J03	eje	hani	REMOVALS:	(4)	
et l	teaces (ndicate total logger	so aldat	eT.	TO	bri	597	TVO I		o a les	of eur	3 mil	LENEROLI	(2)	
					86	tine ;	gn.	ul	March.	tun.	doss			
	which stock was secured.	toril ganes	.8	IO 9	ju de	n ba	1 33	dæ	e eds	e 3 a c	oss: Iedt	TOUGONTHI	(2)	
											30	HEIL LATOR	(7)	
·. 911	to boing to suffer add no		1119	Te.	to E	Billy	uj k	978	nt)as	pris	ļ .	POPULATION		
		14 -2	G	8 2	0.	In b	B 5	SHEE	bnurf e	dues	8973			
120 11 24	nimestab as settengs dose to	en Camp?		rs o P		FT (0.00)	700		o sat		that	SEX BATIC	(2)	
goobil	minimize an entract mass in		1110	200		M 934			d ann	SO ME	Land C	ANAMA DEC	1.547	

Remarks: Survey method, casual observations and hikes over show observed tracks.

eported b	у	
-----------	---	--

#### INSTRUCTIONS

## Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisians white-tailed deer.
- DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
  - (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
  - (4) REMCVALS: Indicate total number in each category removed during the year.
  - (5) LCSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
  - (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
  - (7) TOTAL REFUGE
    POPULATION: Give the estimated population of each species on the refuge at period of its
    greatest abundance and also as of Dec. 31.
  - (8) SEX RATIC: Indicate the percentage of males and females of each species as determined from field observations or through removals.

Refuge Muscatatuck NWR

Year 19.71

Botulism	Lead Poisoning or other Disease						
Period of outbreak	Kind of disease						
Period of heaviest losses	Species affected_						
Losses:  Actual Count Estimated  (a) Waterfowl (b) Shorebirds (c) Other	Number Affected Species Actual Count Estimated						
Number Hospitalized No. Recovered % Recovered	Number Recovered						
(a) Waterfowl (b) Shorebirds (c) Other	Number lost Source of infection						
Areas affected (location and approximate acreage)	Water conditions						
Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.	Food conditions						
Condition of vegetation and invertebrate life	Remarks						
Remarks No disease was observed							

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

3-1757 Form NR-7 'Rev.June 1960)

Refuge	Muscatatuck	Yea	r 19	71

	1			s and Re		Plantings (Marsh - Aquatic - Upland)							
Species	Amount (Lbs., bus., etc.)	(2) C or	Date	cks, tre  Method  or  Source	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of	Amount and Nature of Propagules	Date	Survival	Cause of Los:	
					1								

(1) Report agronomic farm crops on Form NR-8	Remarks: Ho charge was made for collecting mushrooms, persimmons
(2) C = Collections and R = Receipts	or mats. The public was given full access for this purpose.
(3) Use "S" to denote surplus	None of the above were collected for storage by refuge
	nersomel.
otal acreage planted:	
Marsh and aquatic	
Hedgerows, cover patches	
Food strips, food patches	
Forest plantings	

# REFUGE GRAIN REPORT

VARIETY*	On Hand	RECEIVED	(4) Total	(5) Grain Disposed of				On Hand	(7) Proposed or Suitable Use*		
	BEGINNING OF PERIOD	During Period		Transferred	Seeded	Fed	Total	END OF PERIOD	Seed	Feed	Surplus
llow Dent Corn	200	4,250	4,450 lau			2,500	2,500	1.950 Bu		1,950	000
							79				-
8) Indicate shipping or o	collection	points	NA						( ) \-		

<sup>\*</sup>See instructions on back.

## REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

INT.-DUP. SEC., WASH., D.C. 36103

## TIMBER REMOVAL

	Re	fuge Muscata	tuck NAR	Year 1951						
Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cu		
	ALL OF THE TIME	BER REMOVED	FROM THE M	SCATATUCK NWR I	URING 197	1 Was Fro	PRIVATE IN-HOLDI	GS OR		
	THAT TIMBER WE	ICH HAD BEE	N RESERVED	Y THE AGREEMENT	FOR PURC	HASE WITH	A FORMER LAND OWN	R.		
							Ti and the second			
				*						
							1			
				191						
							1			
							A -			
							//\			
Total acreag	e cut over NA	·	Total inc	ome none	*****					
No. of units				slash disposal						

# Fish and Wildlife Service Branch of Wildlife Refuges

# CULTIVATED CROPS - HAYING - GRAZING

Cultivated		Perm	ittee's	Government's Share or Return					Gr	Green Manure,		
		Share Harvested		Harvested		Unharvested		Tota		ver and Water-		
Cro Gro		Acres	Bu./Tons	Acres	Bu./ Tons		Bu. /To	Acrea		wl Browsing Crop pe and Kind	s Total Acreage	
ggeman	corn	63		9			1.	72	Ga	ass Legume	18	
a <b>y</b>	corn	31		10			De si	41	13/3			
evner	corn	40	1 5 £ 2 1 =				314 313	40	Ca	rain Sorghum	20	
nt	corn	30	34 5 5			2	TRIES	32	G	ras Legume	28	
nz	corn	45	1 1 3 3 5	15			8 8 8 8	60	THE PROPERTY.		66	
Donald	corn	15	1 1 3 5	5			1000	20	trope the	2 3 8		
aschino, l	COTA	20	-232				5 1 3 2	20				
skey	corn	15	1 2 4 1	5	1		1 4 8 7	20			St 18	
			2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					30	Fa	llow Ag. Land.	1,000	
o. of P	ermittees	3 %	Agricultura	l Opera	ations	3 4 4	Haying	Operation	s none	Grazing Oper	ation <u>s n</u>	
lay - Im			ons ested	Acres	Cash   Revenue	Gra	zing	Number Animals	AUM'S	Cash A	CREAGE	
None	3 5					1. Catt	le	None	A Mpd			
		PTSIQ PTSIQ	# # H			2. Othe	radaa	None	10 100	E E E		
								Acreage U	1		361	
	Wild				1	Λ	0.71		Camariaa	Operation		

# DIRECTIONS FOR PREPARING FORM NR--8' CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

<u>Cultivated Crops Grown</u> - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only thenumber of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvesed column.

<u>Total Acreage Planted</u> - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops Specify the acreage kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

<u>Hay - Improved - List separately the kinds of improved hay grown.</u>
Annual plantings should also be reported under <u>Cultivated Crops</u>, and perennial hay should be listed in the same manner at time of planting

Total Refuge Acreage Under Cultivation Report total land area devoted to agricultural purposes during the year.

# Fish and Wildlife Service Branch of Wildlife Refuges

# CULTIVATED CROPS - HAYING - GRAZING

			ittee's		s Share		Green Manure,					
Cultivated Crops		Share Harvested		E P FSET		Unharvested		H	Total Acreage	Cover and Water- fowl Browsing Crops		
Grow		Acres	Bu./Tons	Acres	Bu./ Tons	Acres	Bu. /To	ons	Planted	Туре	e and Kind	Acreage
Y	COTH	55		18			12 19		73	80		
schino, G.	corn	48				2	Life y		50	Gra	s Legume	20
ett	corn	9		3					12			
int	corn	30							30	Gra	ss Logums	25
nge	corn	12				6	100	3 3	18	E 2		
schino, L.	corn	26	1 7 8 8			1 9		- 123	26	Gra	ss Laguine	23
sting	corn	36	6 2 0 6				503		36	Gra	us Leguce	18
enroe Gr.	Sorghum	21	e i lië	3		11	5 7 7	Ä	32	Gra	ss Legume	10
cilling	corn	20				11. 12			20	9 9	2 2 2	796
									257	[Fal]	ow Ag. Land.	500
No. of Pe Hay - Imp (Specify	roved	To	Agricultura ons ested	l Oper	Cash Revenue		Haying zing	h	ber A	None UM'S	Cash Revenue	cations N
Rone	7 Ha	9-1	an an			1. Catt	le	N	one	1819		
		The same	18.2			2. Othe	r	Ne	one		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
					1	7				0.21		
						1. Tota	l Refuge	e Acr	eage Unde	r Cult	ivation	393

# DIRECTIONS FOR PREPARING FORM NR--8' CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only thenumber of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvesed column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops Specify the acreage kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

<u>Hay - Improved - List separately the kinds of improved hay grown.</u>
Annual plantings should also be reported under <u>Cultivated Crops</u>, and perennial hay should be listed in the same manner at time of planting

Total Refuge Acreage Under Cultivation Report total land area devoted to agricultural purposes during the year.



Whistling swans were a new addition to the Muscatatuck National Wildlife Refuge bird list, when fourteen swans arrived on November 18, 1971.

# Refuge Staff:

Left to right; Robert Nagel, Assistant Refuge Manager, Charles E. Scheffe, Refuge Manager; Larry Keck, Student Assistant; Mollie McCarty, Clerk; Edward Wagner, Biological Technician



# $\underline{\mathtt{C}} \ \underline{\mathtt{O}} \ \underline{\mathtt{N}} \ \underline{\mathtt{T}} \ \underline{\mathtt{E}} \ \underline{\mathtt{N}} \ \underline{\mathtt{T}} \ \underline{\mathtt{S}}$

-	0	<u>F</u>	age
I.	A. Acquisition History B. Habitat Conditions 1. Water		1 2 2 3
	2. Food and Cover C. Weather Conditions		4
II.	Wildlife A. Migratory Birds B. Upland Game Birds C. Big Game Animals		5 7 7
	D. Fur Animals, Predators, Rodents, and Other Mammals		7
	<ul> <li>E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies</li> <li>F. Other Birds</li> <li>G. Fish</li> <li>H. Reptiles</li> <li>I. Rare and Endangered Species</li> </ul>		9 10 10
III.	Refuge Development and Maintenance A. Physical Development B. Plantings C. Building Removal		12 15 16
IV.	Field Investigation or Applied Research  A. Wood Duck Banding  B. Dove Banding  C. Mammal Study		17 18 18
V.	Public Relations A. Recreational Uses B. Refuge Visitors C. Meetings Attended D. Programs Presented E. Refuge Tours F. Hunting G. Violations		19 23 25 26 27 29
VI.	Other Items A. Items of Interest B. Photographs C. Signature		30 30 31

## I. GENERAL

## A. Acquisition History

Acquisition was approved by the Migratory Bird Conservation Commission on June 7, 1966. Operation was started July 1, 1967.

	Year				Total Acres Acquired			Maintenance get
As	of D	Dec.	31.	1967	2,000	FY-68	-	\$32,000
				1968	4,000			33,000
As	of D	ec.	31,	1969	4,305	FY-70	-	32,000
As	of D	ec.	31,	1970	6,000	FY-71	-	33,000
ÂS	of D	Dec.	31,	1971	6,552	FY-72	-	48,000

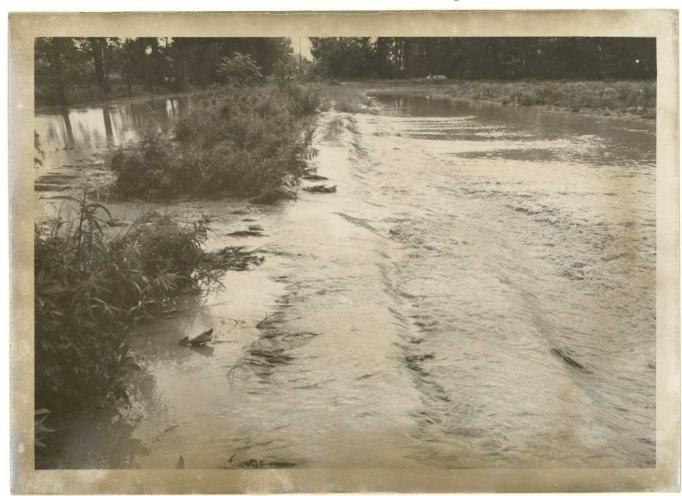
1971 was again a most significant year in the acquisition of the Muscatatuck National Wildlife Refuge. On November 1, 1971, Acting Director, John R. Langenbach, recommended to the Director that condemnation proceedings, including a Declaration of Taking, be filed against 12 of the remaining tracts of land still held in private ownership. The area thus recommended for acquisition by legal proceedings totaled 1,421.76 acres, having an estimated just compensation value of \$707,700.00. The condemnation proceedings and a check for the estimated just compensation were filed on March 7, 1972.

It is the opinion of the Refuge Manager that the  $B_{\rm u}$ reau has done an outstanding job in real estate negotiations to reduce the number of condemnation cases to 12 of the remaining necessary tracts. Again this year, a considerable amount of the Refuge Manager's time was involved in public relations relative to land acquisition. Of tracts previously acquired, three public sales of buildings were held, and twenty-one buildings were sold to the highest bidder.

#### B. Habitat Conditions

#### 1. Water

The annual spring floods occurred on schedule, with all refuge streams overflowing their banks. In July, heavy rainfall caused the streams to overflow again, resulting in serious damage to bottomland crops on the refuge. Flood control is a problem confronting refuge development, as was demonstrated in late December when another rainstorm produced flooding results. Flooding normally occurs during Spring and early Summer, but the only real criteria is rainfall of 1 inch per hour or more. Major flooding occurs when Mutton, Storm and Sandy Branch Creeks flood and the Muscatatuck River is running full.



"Heavy rainfall during any time of the year results in the streams overflowing their banks. In July, this flood damaged all bottomland crops."

#### 2. Food and Cover

As fall migration progressed, we attempted to flood the West Shorebird marsh, which had been seeded to millet and milo. The Storm Creek water level was not sufficient for using a large pump, and the area was not completely covered by water until the flood in late December. Waterfowl response to the area was excellent, with over 1,000 mallards and blacks using the area until freeze-up in mid-January.



"Over one thousand mallards and blacks responded to flooded millet and milo on West Shorebird Marsh in late December."

Upland game continues to increase in numbers as land is acquired and habitat conditions are improved. The cutover timber, which had been sold by previous landowners, is now providing good cover and browse. A grass legume mixture seeded by permittee farmers provides nesting habitat. On eroded areas, we are planting a mixture of pine to control erosion and provide cover.

## C. Weather Conditions

# Precipitation

	Month	Normal	Snowfall
January	2.63	3.99	8.0
February	5.53	2.90	-
March	1.97	4.01	-
April	1.14	3.68	_
May	3.84	4.00	-
June	5.51	4.22	_
July	8.60	3.57	-
August	3.02	2.90	0000
September	4.69	3.26	-
October	1.99	2.42	-
November	1.34	3.23	-
December	3.11	3.86	-
Annual Totals	43.37	42.04	8.0

## Temperatures

	Maximum Temp.	Minimum Temp.
January	54	0
February	59	-7
March	70	18
April	83	26
May	88	30
June	97	52
July	93	49
August	90	50
September	92	43
October	92	34
November	79	15
December	69	14
Annual Extremes	97	-7

The weather data tabulated above were collected at the official weather station, located about five miles northwest of the Muscatatuck National Wildlife Refuge.

#### WILDLIFE

## A. Migratory Birds

## Waterfowl

Another species of waterfowl was added to the refuge list when 14 whistling swans arrived on November 18, 1971. The swans became relatively tame, and allowed many bird watchers and photographers to approach them.



"The flock of whistling swans remained on the refuge from November, 1971 to January, 1972. Many refuge visitors were able to observe these magnificent birds at close range." After resting 16 days on the refuge, six of the swans departed on December 3, 1971. The remaining 8 swans were reduced by one in late December when one swan was killed on a pond off the refuge. Unfortunately, we were unable to determine the identity of the violator. The other 7 birds stayed until thick ice forced them to leave on January 14, 1972. Wood duck production stays below refuge potential because of inadequate brood habitat on the refuge. More migrant waterfowl use the small impoundments each year, Waterfowl use days increased from 142,289 use days in 1970 to 261,184 use days in 1971.



"Watefowl use days continue to increase. The small area kept open by compressed air on Display Pond drew in several hundred mallards and blacks for the enjoyment of wildlife observers. The Canadas, blue and snow geese are part of our display flock.

## Other Waterbirds

The variety and number of refuge waterbirds continues to increase. Black-crowned night heron was a new addition to the refuge waterbird list. Great blue herons were more common this year, and many more green herons were observed.

## Shorebirds

Yellowlegs, sandpipers, killdeer, and snipe continued to frequent the shorebird areas. The semipalmated plover was reported on the refuge by the Beckham Bird Club from Louisville, Ky.

## Mourning doves

Mourning doves are found in good numbers throughout the year.

## B. Upland Game Birds

Bobwhite quail is the only upland game bird on the refuge. This species occurs in fair numbers, and coveys were occasionally seen during the Fall.

#### C. Big Game Animals

White-tailed deer are the only big game animal on the refuge. The refuge has many acres of cut-over timber, and the deer are taking advantage of the excellent cover and browse. From tracks and sightings, 130 deer are estimated for the refuge. Their numbers are being held in check by illegal kills and highway mortality.

## D. Fur Animals, Predators, Rodents, and Other Mammals

## Small game

Each year when making year-to-year comparisons, it is necessary to take into account that the refuge has increased in size by 552 acres this year, and the refuge staff is limited in making extensive surveys. From checking hunters and casual observation, rabbit and quail populations could be considerably increased by providing more and better habitat. In order to increase game populations, the refuge is beginning to supply more year-round cover crops. This is being done to some extent by cooperative farmers.

Whenever possible, the refuge share of cropland is planted

in a grass legume mixture, or the crop is left standing.

#### Rabbits

The cottontail rabbit population is estimated at 850 animals.

#### Squirrel

Squirrel hunting was not permitted on the refuge, and with this protection, the squirrel population remained in good numbers and is commonly observed by refuge visitors. The squirrel population is estimated at 2,500 animals.

#### Muskrat

The muskrat population along Storm Creek was somewhat decreased after an oil spill upstream of the refuge.killed some of the animals. Limited trapping was conducted on dams and levees to control deterioration of these structures. Muskrat houses were left alone, as these house builders are making opening in the cattails, which permits greater duck use.

## Beaver

There are very few on the refuge, but nearby lands support limited populations.

#### Mink

There are only a few mink on the refuge. Increases in mink numbers are not anticipated until large muskrat-filled marshes are created.

#### Raccoon

Raccoon are plentiful. Many of the raccoon hunters have learned that the refuge is closed to raccoon hunting; however, there were a few violations and two cases were made. The problem appears to be decreasing, as the local hunters become more aware of our enforcement policy.

### Opossum

Opossum are still numerous, and road kills are frequently observed.

## Predators

Feral cats and stray dogs continue to harrass wildlife. This problem is lessening as former landowners move off the refuge. Red fox occur in fair numbers, and occasional sightings are made.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies

## <u>Hawks</u>

Most Eastern species of hawks use the refuge. It is uncommon to take a trip through the refuge without seeing two or three species of hawks.

## Eagles

Eagles were not seen this year.

## Owls

Two barred owls were found dead on the road. Great horned, and barred and barn owls are common on the refuge.

#### Crows

Crows are very common throughout the year. No roost has been found on the refuge.

#### Vultures

Turkey vultures are common during the summer months.

#### F. Birds for bird watchers

The refuge bird list has increased to 145 birds. We believe there are many bird species using the refuge that have not been recorded. When time permits, the staff will devote greater efforts toward enlarging our bird list.

#### G. Fish

The refuge was open to fishing from April 15 through October 1. The ice was never thick enough to permit ice fishing. Nice catches of bass, bluegill and catfish were taken early in the season.

## H. Reptiles and Amphibians

At the present time, no poisonous snakes have been reported on the refuge. Some snapping turtles were removed from the refuge during pond renovation. Toads, frogs and salamanders are very numerous. Many bullfrog tadpoles are fattening in the refuge ponds. Spring peepers sing evidence to their abundance in the Spring.

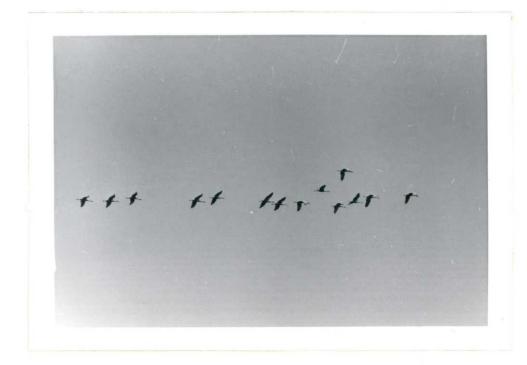
## I. Rare and Endangered Species

## Greater Sandhill Crane

Greater Sandhill cranes migrate through the Refuge in increasing numbers each Spring and Fall. On December 4, 1971, more than 250 sandhills flew over the refuge. Many of these migrants rested on the refuge. With some habitat manipulation, more cranes could be encouraged to use the refuge. The sandhill cranes migrate over the refuge for approximately five weeks in the Spring, and seven weeks in the Fall. See photographs on following page.

# Indiana Bat R+E

The leading mammalogists at Furdue University and Ball State University believe that the Indiana bat probably uses the refuge.



"The rare greater sandhill crane uses the refuge in ever increasing numbers during both spring and fall migration. Over 250 sandhills were observed flying over the refuge this fall, with many of these birds stopping to rest."



### III. Refuge Development and Maintenance

#### A. Physical Development

No development funds were available for CY 1971. Several small flood control ponds, which also serve our wildlife and fishing programs, were constructed with S & M funds. Small repairs were made to several existing ponds and marsh areas. With considerable Green Thumb assistance, we were able to begin two additional trails and rework our one existing interpretive trail. We were unable to obtain any trail leaflets during the entire year of 1971, due to existing printing restrictions handed down from higher authority.

### Water Structures

"Lake Linda", largest of the Refuge ponds, covers 5.6 acres, and was completed in April of 1971. This pond is located in the public fishing area, and we anticipate opening the pond to fishing in 1972.



"Two ponds were constructed this year. The contractors did good work, and were persuaded to place a nesting island in each pond, although original plans did not include an island."

"Lake Sheryll" was completed in September of 1971, and covers two acres. Since this pond is adjacent to three trail entrances, which will be provided with a parking lot, rest rooms and a small picnic facility, we intend to develop the pond into the interpretive program. We also intend to use this pond as a special use fishing pond.



"Green Thumb assistance was our major labor force, with tasks ranging from placing outlet pipes to surfacing trails with wood chips donated by Public Service Co. Their employment is funded by the U.S. Department of Labor, and sponsored by the National Farmers Union."

"Spring Pond" was modified by enlarging the earthen dam face which increased the water surface area from .5 acre to 1 acre.

Several existing ponds and marsh areas required improvements to maintain their water holding capacity. Two earthen dams and levees required minor repairs due to muskrat damage and general wear. In Mini Marsh, leaking of the old field tile system, which had previously been plugged, made water levels difficult to maintain. One hour's work with the small Caterpiller used in cleaning up house sites corrected the problem.

#### Trails

Increasing public use has warranted expansion of our one existing interpretive trail, "Wood duck Trail". A hiking trail and an interpretive trail were begun with the assistance of Green Thumb workers, who brushed the trails, built foot and tractor bridges, and spread wood chips.

"Hidden Pond Hiking Trail" will be finished after land acquisition is completed. The trail is projected to be 3.5 miles in length with a small restroom and picnic facility near the halfway point of the trail. Some interpretive media will be presented along this trail.

The other new trail is "Pine Hills Interpretive Trail" which is 1.5 miles in length. We hope to have this trail ready for use by June 1, 1972. The trail is nearly all brushed, and a foot/tractor bridge has been completed.

The existing "Wood Duck Interpretive Trail" has been re-chipped, and the old silk-screen interpretive signs have been replaced.

### B. Plantings

### Trees

Tree seedlings, planted with the assistance of local volunteer groups and Green Thumb workers in 1971, totaled 5,000 seedlings. Species and number planted included:

Species	Number
White pine Virginia pine Red pine Bald cypress Black walnut Black locust Tulip poplar European alder River birch Dogwood Autumn olive	1,500 1,000 1,500 500 100 100 100 100 250 250
Total	5,000



"Tree planting is primarily limited to eroded areas. Refuge manpower shortage necessitates the use of outside assistance. We employ the free services of Green Thumb workers, Scout Groups, FFA, 4-H and other student groups in conducting our tree planting program".

The trees were primarily placed on areas that had been subjected to poor agricultural practices prior to Government ownership. Approximately 8 acres of trees were planted on these areas, with the remaining trees used in landscaping our interpretive area.

### Cultivated Crops

Since the refuge does not have the necessary farming equipment or staff for our own farming program, we let permitees do the farming. Overall production can be considered as average because the corn blight problem did not develop to the degree expected. Late flooding in July damaged most bottomland crops. Fermittees seeded 142 acres of a grass legume mixture composed of the following:

Species	lbs./acre
Orchard grass Sweet clover Alsike clover Ladino	2 5 2 1
	10 lbs./acre

We require that one cutting be made during late summer of the first year to reduce weed competition.

#### C. Building Removal

The removal of residences and farm buildings acquired by the refuge continues to be our most significant activity. Buildings to be removed are sold by sealed bid with the agreement for off-site removal. During 1971, a total of 8 residences and 17 farm buildings were removed in this manner. After the buildings have been removed, we do the final clean-up of the area with Green Thumb assistance. We level the basements, wells, and cisterns that remain.

### IV. Field Investigation or Applied Research

### A. Wood Duck Banding

Our wood duck banding quota of 250 birds was reached on September 12, 1971. Trapping began on July 8, with one walk-in trap located at both Mini Marsh and North Shorebird Marsh. The trap located on the North Shorebird Marsh was later moved to Pin Oak Pond, located behind the Refuge Manager's residence. Shelled corn was used as bait. Age and sex summary of the 250 wood ducks banded are as follows:

	Male	Female
Hatching year	90	43
Adults	84	33
Total	174	76

Some mammal interference did occur, with an occasional wood duck being lost to raccoon and mink predation. When raccoon activity became a problem, we livetrapped the animals at the banding site. The few raccoon caught were given to local conservation clubs for release on their hunting areas. We do not permit raccoon hunting on the refuge, and some of the local hunters feel resentment toward the refuge. The donation of several raccoon helped to improve relations. Mink are in low numbers on the refuge, and we were surprised to catch a young one in a live trap. This animal was given to the Ball State graduate student conducting a mammal study on the refuge.

Thirteen band recoveries were reported from the 237 wood ducks banded in 1970. States and number of recoveries in each state were Indiana (3), Georgia (4), Alabama (2), Louisiana (2), Florida (1), and North Carolina (1).

#### B. Dove Banding

We conducted a dove banding program on the refuge, and assisted F. Charles Kniffen, Bureau Management and Enforcement Officer, with banding 2,500 doves at Freeman Field. Refuge banding was conducted from June 30 until August 5, with a total of 95 doves being banded. Millet was used primarily as bait.

#### C. Mammal Study

A study of refuge mammals has been in progress the past year by Dean Huffman, graduate student at Ball State University, who is working on his Master of Science degree. This study is a continuation of the project conducted in 1969 by Gordon Reynolds, entitled "Marmals of the Muscatatuck National Wildlife Refuge". Refuge personnel have assisted in collecting specimens and have offered advice.

### A. Recreational Use

The total estimated number of recreational visitors continued to increase from 63,947 people in 1970 to 80,120 in 1971. After land acquisition is completed in 1972, and some development is undertaken, recreational use is anticipated to increase rapidly.



"Visitor use continues to increase as local schools begin to utilize refuge facilities as an outdoor classroom."



"Ed Wagner, biological technician, demonstrates fish feeding as part of our fish management program. This pond is located along our Wood Duck Trail."



"One proposed recreational development for the Muscatatuck National Wildlife Refuge area includes two impoundments north of the refuge. These two areas would provide non-wildlife-oriented recreation."

With the cities of Indianapolis, Louisville, and Cincinnati all being within  $1\frac{1}{2}$  hour's drive of the refuge, the control of public recreation will be a major refuge concern in the future.

Presently, our major attractions are fishing, hunting and wildlife observation. Since fishing and hunting are nearing refuge capacity, we are directing our efforts toward increasing wildlife numbers and variety through habitat development.



"Special fishing contests are held on ponds provided for this purpose. This youth contest was well attended, and all the boys and girls managed to catch a bluegill, bass or catfish. Prizes were given for the largest, smallest and most fish caught in each age catagory."



"A local Boy Scout troop helped to renovate a pond in the morning, and then were allowed to fish at a special occasion pond. Their expressions testify to their angling ability."

### B. Office Visitors

Congressman Lee H. Hamilton, 9th District David McFall, Administrative Assistant to Congressman Hamilton

Chuck Danner, District Biologist, Ind. Dept. of Natural Resources

Jim Harrison, Project Leader, Central States Fisheries Station, Princeton, Ind.

George Armstrong, State Probation Officer

Marvin France, Executive Secretary, Vernon Forks
Conservancy District

Joe Branco, Historic Hoosier Hills R C & D Project Coordinator

Louis Kowalski, Regional Office Engineer Arden Trandahl, Regional Office Fisheries Biologist Paul Kunz, Supervisor, Indiana Highway Commission

Dick Dickerson, S.C.S. District Conservationist, Jackson Co.

John Wolf, Chief Negotiator, Division of Realty George Tilford, Sports Writer, Indianapolis News Robert Dryden, S.C.S. technician, Jennings Co. John Winship, Regional Office Pilot

Bill Jensen, Review Appraiser, Division of Realty Herb Krauch, Extension Wildlife Biologist, Purdue University

Roger Mustonen, Regional Office Surveyor Leroy Dennis, Regional Office Surveyor Steve Anderson, Regional Office Surveyor Henry Krumme, realtor, Seymour, Ind.

Chuck Moss, Central States Fisheries Station,

Princeton, Ind.
Larry Sintz, Biologist, Ind. Dept. Natural Resources

Jim Gritman, Associate Regional Supervisor
Philip Morgan, Assistant Regional Supervisor
Frank Haubry, Forest Ranger, Brownstown District

F. Charles Kniffen, H.S. Game Management Agent in Charles

F. Charles Kniffen, U.S. Game Management Agent-in-Charge, Indianapolis, Ind.

James Peterson, Associate Professor; Health, Physical Education and Recreation, Indiana and Purdue Univ.

Gerald Cummings, Wildlife Biologist, Chautauqua National Wildlife Refuge

David Turner, Refuge Manager, Monroe Reservoir

Harry McClain, Investigator, Audit Operations, Dept. of Interior Bill Zimmerman, free lance wildlife illustrator James Endicott, local refuge supporter Luveen Swanburg, Regional Office Surveyor Larry Owens, Forester, Indiana Dept. of Natural Resources Hannibal Bolton, Central States Fisheries Station, Biologist Lt. Philip Ohmit, Clark State Forest Larry Sisk, Hebron Fish Hatcheries Clair Rollings, Staff Specialist, Regional Office Gary Larson, Predator Control Division BSFW, Purdue University Bill Thomas, nature photo-journalist Bill Sontag, Regional Office Staff Specialist, Interpretation James Hughes, Realty Division, Indiana Dept. of Natural Resources Robert Gerry, Jackson Co. Sanitarian James Mason, Environmental Protection Agency, Evansville, Indiana Ron Ulrich, Environmental Protection Agency,

Joe Lamendola, waterfowl biologist, Indiana Dept.

Evansville, Indiana

of Natural Resources

### C. Meetings Attended by Refuge Personnel

Date	Organization
1-14	Executive Council, Indiana Chapter of the Wildlife Society
1-14	Gene Bass, Director, Division of Fish and Wildlife, Indiana Dept. Natural Resources
1-27	Advisory Board, Indiana Green Thumb
2-1	Annual dinner, Soil & Water Conservation
	District, North Vernon, Ind.
2-2	Vernon Forks Conservancy District,
	Monthly meeting
2-12	Seymour Chamber of Commerce, Annual Meeting
2-19	Seymour Daily Tribune, Vernon Forks Conservancy
	District, Seymour Chamber of Commerce
	Recreation Committee, Co-operative meeting
3-12	American Fisheries Society - Ball State Univ.
3-24	Historic Hoosier Hills R C & D Project
4-1	Seymour Chamber of Commerce, Recreation Committee
4-29	Jennings Co. Parks & Recreation Board
5-27	Jackson Co. Chamber of Commerce, Recreatinn Committee
6–3	Jackson Co. Chamber of Commerce, Recreation Committee
7-1	Pond Demonstration, Jackson Co. Conservation Club
7-28	State Advisory Committee on Outdoor Recreation
9-10	Indiana Chapter of Wildlife Society
9-14	Jackson Co. United Fund
10-7	Jennings Co. Fair Committee

### D. Programs Presented

Date	Organization	Number Attending
2 <b>-13</b> 2 <b>-</b> 20	Jackson Co. Rock & Fossil Club Hoosier Outdoor Writers' Assn.	25 20
2-25	Crothersville High School Ag. Dept	
3-16	Interested citizens	10
3-27	Indiana Chapter of Wildlife Societ	ty 200
4-1	Chairman, Workshop on White House	20
	Conference on Aging	20
4-21	White River Fish and Game Club	18
5-11	High School Class - Seymour H.S.	36
5-15	Youth Fishing Contest	101
5-22	Special fishing contest for tree	
	planters	50
6-16	Historic Hoosier Hills R C & D	
	Project, Versailles, Ind.	20
9-18	Fishing rodeo for Boy Scouts	20
9-30	Cub Scouts	40
10-10	Cortland Lutheran Church Youth	130
10-14	All Thumbs Garden Club	15
10-18	Rotary Club	95
12-11	Jackson Co. Rock & Fossil Club	35
12-21	Dudleytown Conservation Club	40

## E. Refuge Tours

Date	Organization Nu	mber Attending
1-13	Congressman Hamilton and Admnis. Assistant, McFall	2
1-16	Ball State University Wildlife Clas and Dr. Ralph Kirkpatrick	
2-17	Public Service Co. personnel	3
2-18	Recreation Committee, Seymour Chamb	
2-27	of Commerce Cincinnati Zoological Society	15 24
3-2	James Harrison, Central States	~~~
3-24	Fisheries Station	1
)-24	George Tilford, sports writer, Indianapolis Star	1
3-26	Art Reddinger, County Extension	
	Youth Agent	1
4-17	Girl Scouts & Leaders	16
4-20	6th Grade Class	60
4-24	Girl Scouts	13
4-24	Girl Scouts	17
4-27	2nd and 3rd Grade Class & Teachers	60
4-30	Girl Scouts	14
5-4	Cub Scouts	13
5-7	Senior Citizens - Jennings Co.	20
5-9	Short Ridge High School students	15
5-14	Frank Hughes & class of elementary	
	teachers from Indiana Universi	ty 22
5-17	2nd graders and parents	40
5-18	Kindergarten class & supervisors	68
5-19	1st & 3rd graders & supervisors	66
5-21	3rd & 4th graders & supervisors	84
5-24	Interested visitors	15
5-26	Cub Scouts & Leaders	14
6-3	Jim Peterson, Indiana & Furdue Univ	
6-10	Retarded children from Muscatatuck	• 1
0-10		F ()
6-17	State Hospital	50
	Church group	108
6-17	Church group	17
6-17	Retarded children from Muscatatuck	0.0
( 22	State Hospital	28
6-23	Church group	125

Date	<u>Organization</u> <u>N</u>	umber Attending
6-24	4-H Group and Leaders	11
6-25	4-H Group & Leaders	35
7-7	Girls Club members and leaders	20
7–8	Retarded children from Muscatatuck	r0
7-12	State Hospital	50
7-12	4-H Field Day Youth Conservation Corp Camp -girls	. 56 18
7-15	Retarded children from Muscatatuck	10
7-10	State Hospital	50
7-17	Boy Scouts	12
7-20	Hunter Blanco, Chairman, Seymour Cham	
1-20	of Commerce, Recreation Committee	
7-21	4-H Youths & Leader	16
7-29	Retarded children from Muscatatuck	10
,	State Hospital	50
7-29	Youth Conservation Corp Camp -girls	13
8-9	Bob Norrell, Scoutmaster	1
8-12	Retarded children from Muscatatuck	ė.
	State Hospital	50
8-19	Retarded children from Muscatatuck	
	State Hospital	50
9-12	Interested visitors	10
9-30	3rd Grade class - Redding School	68
10-7	Advisory Council to Bureau of Lands,	
	Forest & Wildlife Resources	13
10-7	Girl Scouts & Leaders	31
10-19	Wayne School - 5th Graders	31
10-26	Brownies & Leaders	24
10-31	Interested visitors	20
11-2	Cub Scouts & Leaders	18
11-3	Henry Horstman, S.C.S. and Charles	
	Yeager, Co. Extension Agent	2
11-3	Kindergarten class & teachers	62
11-16	Brownies & Leaders	27
11-20	Girl Scouts & Leaders	23
11-22	Jim Hunt, State Board of Health and	
	Hubert Caldwell, Jennings Co.	0
12 20	Sanitarian	2
12-30	Joe Lamendola, Waterfowl biologist	1

#### F. Hunting

The quail and rabbit season opened November 20 and remained open until December 31 for quail and January 31 for rabbit. The season and the daily bag limits of 10 quail and 5 rabbits were in keeping with the State of Indiana hunting regulations. An additional 320 acres were opened to public hunting in the Fall of 1971, making a total of 1,320 acres of suitable upland game habitat for the refuge hunter. Initial hunting success was good, with many hunters getting both quail and rabbit. After the first week of hunting, hunting success diminished and the number of hunters dropped. The total manuber of hunters increased from 650 hunters in 1970 to 2,400 hunters in 1971. Hunting of all other forms of wildlife on the refuge is prohibited.

#### G. Violations

We continue to have problems with dumping of trash and raccoon hunting on refuge lands. After land acquisition is completed and some public access roads are closed, control of refuge land and visitors will become less of a problem. The cases listed below were made on or in the vicinity of the refuge during 1971. All of these cases were prosecuted in State Court:

Violator	Date	Offense	Disposition
Michael Root Steven Robinson Donald Matney	3-14-71 4-15-71	Dumping trash Dumping trash	\$21.00 fine 30.00 fine 23.25 fine
		Shooting waterform motorboat	26.00 fine
Felix Woods		Shooting waterform motorboat	26.00 fine
Walter Campbell Merrill Stewart		Hunting raccoon Hunting raccoon	26.00 fine 26.00 fine

#### VI. Other Items

### A. Items of Interest

Honorable Lee H. Hamilton, Ninth District Congressman, visited the Muscatatuck National Wildlife Refuge in January to familiarize himself with refuge progress. Congressman Hamilton is very concerned with the planning and development of the refuge.

A \$195,000 appropriation for Muscatatuck National Wildlife Refuge was passed by the House of Representatives in July. The appropriation was omitted in the Senate. Congressman Hamilton re-submitted a new request, and this supplemental appropriation for \$100,000 was again approved by the House of Representatives and passed by the Senate. The money had not been released by the Office of Management and Budget as of January 1, 1972. A majority of this money will be spent on master planning, with the remainder being spent on beginning development.

The Refuge Manager was appointed to the Indiana State Advisory Committee on Outdoor Recreation in August.

### B. Photographs

Photographs are placed in the text, as applicable, with additional photographs appended.

### SIGNATURE PAGE

Submitted by:

(Signature) Charles Z/Scheffe

Refuge Manager (Title)

Date:

Approved, Regional Office:

Date: MAY 811972

(Signature)

ASST

Regional Refuge Supervisor



"Do you have a shorter pole?" This youngster was out to catch a trophy during one of our fishing contests.



"Wood ducks are the major nesting waterfowl on the refuge. Wood duck broods have shown good utilization of Mini Marsh and North Shorebird Marsh."



"Many wildlife observers enjoy watching our display flock of mallards. Their daily presence provides a living experience for the numerous conducted tours provided by refuge personnel."



"Local support of refuge development is a primary concern. The good will promoted by a family fishing outing will help smooth out future problems."

"Moss Lake has long been the site of a wood duck roost, although several other marshes built by the refuge appear to be developing into roosts. If a large impoundment is constructed, Moss Lake will form the main pool.



### WATERFOWL

(1)	Weeks of reporting period												
Species	1	2	3	: 4	5	6	7	8	9	10			
Swans:					1					<b>†</b>			
Whistling							1	1		-			
Trumpeter Seese:							-						
Canada													
Cackling	3	3	3	3	3					+			
Brant		1		-									
White-fronted					-	-				+			
Snow	-												
Blue													
Other													
ducks:		1											
Mallard	80	150	200	300	300	300	200	100	50	300			
Black	8	30	4.0	60	60	60	30	20	20	100			
Gadwall						/							
Baldpate	_ 5					/ /		5		6			
Pintail	_6	10	10	10	10	/10	10	10	10	60			
Green-winged teal		-						2	2				
Blue-winged teal								-					
Cinnamon teal Shoveler			-				-			-			
Mood	5	6	6	6	6	6	6	6	6	10			
Redhead		1	1-1-		-		1 1	2	2	10			
Ring-necked										1			
Canvasback	1					-							
Scaup	-												
Goldeneye													
Bufflehead				-1									
Ruddy													
Other									No.				
		_							1 2				
	-	*							2	-			
Coot:													

Int. Dup. Sec., Wash., D.C. 37944

### WATERFOWL (Continuation Sheet)

T) betal bedretten:	in the state of the W	eeks	of r	: (3) : Estimated : waterfowl	: (4) : Production : Broods: Estimated						
(1) : Species :	11	12	13	14	15	16	17	18	: days use		
Swans:	and Gra	o, megu	reduzá	a alaws	151-						
Whistling					3 7 7						
Trumpeter	Prince of									C COURT CO.	
eese:		I TO THE STATE OF	BT085	- 1000			ra I		Fed Plants et	ess ster	Marine American
Canada		4		-					133		
Cackling										1 - 0 1	
Brant				- N. H.			One Serie				
White-fronted									#0#		
Snow		10	25	25	40				595	-	
Blue		7	30	30	50				819	-	
Other										-	
nicks:											
Mallard	500	600	500	400	100		-		27,167		
Black	150	150	100	100	20		20.0	A IN CO.	6,536		
Gadwall	6	20	20	4	4 22 022	CARLES CAR			350	O F EPON	9 120
Baldpate	100	200	200	150	50	50		400 000	5,362	i din i	4 414
Pintail -	100	100	50	25					2,947		
Green-winged teal	10	20	30	40	7520	14 1 4 1 4	Fe Heth	Les He	728		
Blue-winged teal	40	200	200	300	400	700	300		14,894		
Cinnamon teal											
Shoveler	25	30	30	30	3	20	10		1,477		
Wood	150	150	150	200	300	4.00	500		13.069		
Redhead	T. John S	2	2						28		
Ring-necked	20	100	100	30	10				1.827		
Canvasback	1,070										
Scaup		100	100	20	Transfer and	1 1 116		NAME OF STREET	1.540		
Goldeneye	231		40		10	-			70		
Bufflehead	1	1	1						21		
Ruddy											
OtherHooded Merganser		2	2	2	2	2	2		84	than s	1019
Coots:											
				60	100	100	50		2,170		
					over)						

	5) Days Use : Pea	(6) k Number	: Total	(7) Produc	ction	100 100 50	SUMMARY
Swans	1 16 18 18 18 18 18 18 18 18 18 18 18 18 18		. 5		-5	Principal feeding areas	Flooded millet in the shore
Geese 1.	547	55		0			bird area
Ducks 76	180 : 1	,675	300	0	30	Principal nesting areas	1,540
Coots 2,	170 :	100	100	100	30	10	1,827
			30 150	30 150	200	Reported by	13,069
		Y0	\$00 L	5500	300	1.100	
(2) Weeks of	gi					and national significand	Special attention should be
Reportin		11 -1 - 1					27,167
		timated a	verage 1	refuge	popula		27,167
(3) Estimate Days Use	ng Period: Es			25			595 819 87,167
Days Use	ng Period: Ested Waterfowl e: Ave	erage wee timated n ntative b	kly popu umber of reeding	alation f young areas.	s x nu produ Broo	tions.  mber of days present for  ced based on observations d counts should be made o	each species.  and actual counts on repre-
Days Use	ng Period: Ested Waterfowl e: Ave	erage wee timated n ntative b	kly popu umber of reeding breeding	ulation f young areas. g habit	s x nu produ Broo at. E	tions.  mber of days present for ced based on observations d counts should be made ostimates having no basis	each species.  s and actual counts on repre- on two or more areas aggregating
Days Use	ng Period: Ested Waterfowl e: Ave ton: Ested See 100 ays Use: A s	erage wee timated n ntative b % of the summary o	kly popu umber of reeding breeding	alation f young areas. g habit recorde	s x nu produ Broo at. E	tions.  mber of days present for ced based on observations d counts should be made ostimates having no basis r (3).	each species.  s and actual counts on repre- on two or more areas aggregating

## WATERFOWL

Species   1   2   3   4   5   6   7   8   9	(1)	Weeks of reporting period												
### Institute		1	2	3	4	5	6	7	8	9	: 10			
rumpeter se: anada anada ackling reart hite-fronted now lue ther ks: allard lack advall aldpate intail recen-winged teal lue-winged teal innamon teal hoveler ood edhead ing-necked anawas back eaup oldeneye unifflehead uddy howeler outflehead uddy										i -	<u> </u>			
se: anada ackling trant hite-fronted now due ther ther tks: allard lack adwall aldopate intail reen-winged teal due-winged teal innamon teal hoveler ood edhead ing-necked anavas back caup oldeneye unfflehead uddy											-			
Semada   Semanda   Seman					ļ <u>.</u>									
ackling rant hite-fronted now lue ther ks: allard lack advall aldpate intail reen-winged teal innamon teal hoveler ood edhead ing-necked anvasback caup oldeneye unfflehead uddy														
				-							-			
hite-fronted  now liue ther ks: allard lack adwall aldpate intail reen-winged teal lue-winged teal innamon teal hoveler ood eing-necked anvas back caup oldeneye unfflehead uddy											-			
Now   Color														
ther ks: ks: kallard dlack adwall aldpate intail reen-winged teal due-winged teal dinamon teal hoveler ood edhead ing-necked anvasback caup ooldeneye ufflehead uddy														
ther ks: allard lack adwalt aldore intail reen-winged teal lue-winged teal lue-winged teal lue-winged teal innamon teal hoveler ood edhead ing-necked anvas back caup ooldeneye ufflehead uddy		-				<del> </del>					_			
ks: allard dlack adwall aldpate intail reen-winged teal dlue-winged teal dlue-winged teal innamon teal hoveler ood edhead ing-necked anvasback caup ooldeneye ufflehead uddy											+-			
allard   aldack   adwall   aldpate   allard   allapate   allapat				+						1	-			
adwall aldpate					1									
Saldpate   Sintail   Sin	lack			+										
Intail Interem-winged teal	adwall													
Creen-winged teal   200   100   100   20   10   10   10	aldpate													
Sinuamon teal   200   100   100   20   10   10   10														
Sinnamon teal	reen-winged teal		_											
hoveler	lue-winged teal	200	100	100	20	10	10							
ood         550         550         550         575         100         620         650         700           ing-necked         anvas back								**						
edhead ing-necked anvas back caup oldeneye sufflehead andy														
ing-necked anvas back caup oldeneye ufflehead uddy		550	550	550	575	100	620	650	650	700	700			
anvas back caup oldeneye ufflehead uddy														
caup oldeneye ufflehead uddy														
oldeneye ufflehead uddy				-										
ufflehead uddy				-										
uddy											-			
			<u> </u>	1	-	-			,					
						-				1	-			
	one:		-			-					-			
50 50 30 3 3														

# (Rev. March 1953) WATERFOWI (Continuation Sheet)

T) Cotal Promuce Long	· W 2 mmean	e e k s	of r	(2) e p o	r t i n	g p	eri	o d	: (3) : Estimated : waterfowl	Produ	(4) action
Species	- 11	12	13	: 14 :	15 :	16:	17 :	18	: waterfowl : days use	Broods seen	Estimate total
Swans:	y Samuley,	of data	TRECOLG	d unde	· (3).						
Whistling Trumpeter	-	a ricem	DE DOOR	(C) (C) (C)	Le Tracie e c	o morani	orsi tari	ngare h			
Geese:	16-01911114	pleedi	S areas	Brook	r comic	a alinit	ra be	inde o	can or pore are		c Se a truff
Canada	Satimated	Unupsi	et Tom		ed bas		DOSCIV	SCTOPE S	DU SCLUST COMUL	R DULL	
Cackling											
Brant		semma bo	phlatio	E X UE	mer or	ga 16	oreser	0 101 69	L.J. physics:		
White-fronted											
Snow											
Blue	Tr full gran	77.01 1 :	Logica.	EQ.L. I U	Java						
Other											
Ducks:											
Mallard	- TAGE 80	Mose sy	actes o	Togal	SUG DE	CIONAL	RIDUT	r.f.dempe	1152	0	
Black	Lebolator	period	BILDUILG	e adde	L IU. HO	brobur	are ap	rigger i	DECTRE REPRIETE	BODE E	7 10
Gadwall		07 00 01	e utras	Listed	on Tor	n, ota	er spe	168 000	STATES OF Teach	E COLLI	E 715
Baldpate				-							
Pintail		299		102071	1235	A) TOTAL	re wer	72.4.2	TO MSTATE (		
Green-winged teal Blue-winged teal									000%		
Cinnamon teal			-		3	3	6_		3305	0	
Shoveler											
Mood	500	5000	700	700	700	700	700		77,335	30	50
Redhead	700	700	700	700	700	700	700		119000	50	
Ring-necked											
Canvasback	740		300		TITEL	DAT DE	ลาวบริ	ELWER	lone builtion gas	Storm	Challe):
Scaup											
Goldeneye											
Bufflehead											
Ruddy					Princi	pal fe	egglatt.	areas M	ni-Mansh		
Other		- 1° (									
coots:	EARK BURNE	I I Lone	r Lhagn	ction				- 1	952	0	
				1					12~	-	
					(over)						
					1						

(5) Total Days Use:	(6) (7 Peak Number : Total Pro	duction	SUMMARY	0 -
Swans :		Principal feeding areas	S Mini-Marsh	
Ducks 82,791 :	750 : 300	Principal nesting areas	S Along Muttom an	d Storm Creek
Coots 952 :	50 : 0	Reported by	77,335	30 50
		3 3 6	3305	
(2) Weeks of Reporting Period:	Estimated average refu	ge populations.		
(2) Weeks of		d be added in appropriate spaces. of local and national significar		
(3) Estimated Waterfowl Days Use:		ions x number of days present for	each species.	
(4) Production:	sentative breeding area	ung produced based on observation as. Brood counts should be made bitat. Estimates having no basis	on two or more are	eas aggregating
(5) Total Days Use:	A summary of data recon	rded under (3).		
6) Peak Number:	Maximum number of water	rfowl present on refuge during an	y census of report	ting period.
(7) Total Production:	A summary of data reco	rded under (4).		
1.41.4.14.1		0.0		

### WATERFOWL

(1)	Weeks of reporting period										
Species	1	2	3	4	5	6	7	8	9	10	
wans:										1	
Whistling					-						
Trumpeter											
eese:											
Canada				6	16	16	37	37			
Cackling										7	
Brant											
White-fronted											
Snow											
Blue								2	2	2	
Other									-		
ucks:		<b>1</b>									
Mallard	3	40	4.0	50	50	80	400	440	400	100	
Black		40	6	6	50 10	12	100 15	110 15	130	180	
Gadwall			1	1		/			20		
Baldpate	`				6	/ 10	20	20	25	40	
Pintail						/ 1	4	1	1	10	
Green-winged teal			10	5	15	10	10	10	10	15	
Blue-winged teal	12	80	90	70	60	70	70	70	60	15	
Cinnamon teal		80	1 90	1 70	00	A	70	70	00	1	
Shoveler		+	1	,	,	6	6	6	6	6	
Wood	150	150	600	600	600	600	500	500	500	4.00	
Redhead	650	650	600	600	600	600	500	500	500	400	
Ring-necked			-	-	1					4.5	
Canvasback			-							15	
Scaup			-								
Goldeneye		-									
Bufflehead		-	-							1 5-1	
Ruddy		-		1						-	
Other			-		-				0	-	
Other											
oot:			20	20	20	20	25	30	40	50	

# (Rev. March 1953) WATERFOWI (Continuation Sheet)

(1) Species	: W	Weeks of reporting period : Estimated : Production : waterfowl : Broods: Estimate											
	: 11	12	13	: 14	15 :	16	17 :	18	: waterfowl : days use	: Broods : seen			
wans:	TO BANKING	of data	records	d unde	8	8	8	8	5 <b>18</b>				
Whistling Trumpeter		14	14	14		0	0	0	316	o omroo			
Heese:		12.66011	Z STESS	171.00	r comus	5 53011	LO DE	sede on	TWO OF MOTE &I	cres erro	starret		
Canada	7.14	AMERICAL .	or Agrir	buego	eg pas		DDUELA	stiols s			bre-		
Cackling													
Brant	The little of	sejija Di	pulation	e x on	DOGL OF	d8,78	bresen	C LOT 65	ch species.				
White-fronted			dino - )										
Snow			Care in the Care Name Care Care										
Blue Blue Bellous	2	2	2	2	2	2	2	2	154				
Other													
Ducks:													
Mallard	180	250	250	350	350	350	350	400	22.834				
Black	30	DGI 60	60	75	75	75	75	100	4.634	ou ston	or no		
Gadwall	10	20	20	30	20	10	10	10	1.036	es corre	® oue		
Baldpate	50	75	75	50	50	20	20	10	3.297				
Pintail DAS	20	25	25	10	10	MITGIT	re Rei	rece lit	812				
Green-winged teal	10	10	10	50	30				1.330				
Blue-winged teal	10								4.249				
Cinnamon teal													
Shoveler					Report	ag på			266				
Wood Redhead	400	400	4.00	400	200	150	150	50	54.250				
1100110010	12	1	Ů.						84				
Ring-necked									105				
Canvasback			U		Princi	pal Me	sting	STERE					
Scaup													
Goldeneye	35		Y										
Bufflehead													
Ruddy					Prima	Ball fie	edd na	Mreas ,					
Other													
cots:	50	50	50	20	20	10	10	10	3,135				
					(over)								
				1	Inver)	l .			Dr. vide				

(5) Total Days Use:	(6) (7) Peak Number: Total Production SUMMARY
Swans 518	
Geese 90/.	
Ducks 92,897	965 Principal nesting areas
Coots 3,135 :	-20 : 100 000 100 200 150 150 50 54,250
	Reported by
INS	IRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)
<ol> <li>Species:</li> <li>Weeks of</li> </ol>	In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
Reporting Period:	Estimated average refuge populations.
(3) Estimated Waterfowl Days Use:	Average weekly populations x number of days present for each species.
(4) Production:	Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
(5) Total Days Use:	A summary of data recorded under (3).
(6) Peak Number:	Maximum number of waterfowl present on refuge during any census of reporting period.
(7) Total Production:	A summary of data recorded under (4).
Fuscatatuck B.R.	December 31 . 1971

3-1751 Form NR-14 (Nov. 1945)

### MIGRATORY BIRDS (other than waterfowl)

Refuge Muscatatuck NWR

Months of January 1 to April 30 195 71

(1) Species	First	2) Seen		3) umbers		4) Seen		(5) Production	n,	(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies		Total Young	Estimated Number
I. Water and Marsh Birds: Sand hill cranes	2	2-24-71	63	2-28-71	36	3-29-71		11.0.124		100
American egret	1			ns and Pr		The Line				120
American egret	1	4-1-71	1	4-1-71	1	4-1-71				1
Little blue heron	1	4-25-71	2	4-28-71	0 1 1	4-30-71		**************************************		4
Green heron	1	4-28-71	10	4-30-71	10	4-30-71				25
				LL ( 1862)						
II. Shorebirds, Gulls and Terns:										40 dalamento o caracter de la constante de la
Killdeer	118	2-5-71	15	4-10-71	2	4-30-71				250
Wilson snipe	12	4-1-71	30	4-18-71	1	4-30-71				300
Woodcock	1	4-10-71	1	4-10-71	1	4-10-71				75
	100	1-1-71	500	J (77 )	90	7-30-41				6,000
				(over)	(4			Tar		1

	(1)	()	(5		3)		4)	(5)	(6)
II.	Doves and Pigeons: Mourning dove White-winged dove	100	1-1-71	300	3-20-71	50	4-30-71		8,000
V.	Predaceous Birds: Golden eagle								
	Duck hawk	1	12-10-77	1	4-11-79	1	4-10-71		132
	Horned owl Magpie	15	9-1-11 ;	30	4-14-71		7-30-71		3.0
	Crow	18	1-5-71	20	3-1-71	2	4-30-71		250
	Shorebirds, Galls and								
									1
							Reported by		

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconiiformes and Gruilformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) al: Estimated total number of the species using the refuge <u>during the period</u> concerned.

INT.-DUP. SEC., WASH., D.C.

3-1751 Form NR-1A (Nov. 1945)

## MIGRATORY BIRDS (other than waterfowl)

Refuge Muscatatuck NWR

Months of May 1 to August 31 19571

(3) (4) (5) (2) (1) (6)First Seen Peak Numbers Last Seen Production Species Total Number Total # Total Estimated Date Number Date Number Date Nests Number Colonies Young Common Name Number I. Water and Marsh Birds: 5-9-71 5-9-71 Common Gallinule 5-9-71 0 Yellow Crowned Night Heron 8-12-71 2 8-12-71 0 5-10-71 2 2 Black Crowned Night Heron 5-11-71 1 1 5-11-71 0 5-11-7 0 5-3-71 5 2 8-31-71 0 Great Blue Heron 7-29-71 8-20-71 Little Blue Heron 6-1-71 7-15-7 1 0 0 5-3-71 5 8-29-71 20 40 80 30 Green Heron 7-21-71 II. Shorebirds, Gulls and Terns: Sora Rail 7-8-71 2 8-20-71 5-10-71 0 30 4 0 5-1-71 7-9-71 9-29-71 Killdeer 100 100 200 400 Woodcock 5-8-71 1 5-8-71 1 5-8-71 0 10 Spotted Sandpiper 6-3-71 12 7-10-71 8-25-71 20 50 1 1 10 Pectoral Sandpiper 20 8-17-71 8-17-71 8-17-71 20 20 60 0 Wilson Snipe 8-28-71 6 8-28-7 6 8-28-71 21 (over)

(1)		2)		(3)		(4)	(5)	1	(6)
Mourning dove White-winged dove	10	5-1-71	300	6=25-71	20	8-19-71	1100	2000	5000
IV. Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie Raven Crow	1	5-1-71	20	6–19–71	2	8-29-71	10	20	25
						Reported by			

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)

II. Shorebirds. Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) tal: Estimated total number of the species using the refuge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

59317

# MIGRATORY BIRDS (other than waterfowl)

Refuge\_Muscatatuck\_NWR\_\_\_\_\_\_\_Month

Months of September 1 tolecember 31 195.71

(1) Species	First	2)	Peak N	3)		4) Seen		(5) Productio	n	(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimate Number
I. Water and Marsh Birds:	Crust 18	786 C6CC	· · · · · · · · · · · · · · · · · · ·					File		
Sandhill cranes	26	11-5-71	250	12-4-71	65	12-17-71		0	0	400
American egret	1	9-17-71	1 1	9-17-71	1	9-17-71		0	.0	1
Green Heron	5	9-4-71	25	9-27-71	1	10-1-71		0	0	80
Great Blue Heron	4	1-5-71	5	9-21-71	1	12-16-71		0	0	5
							*			
						1	. 0.8			
T Chambinds Culls and			-							
I. Shorebirds, Gulls and Terns:										
Wilson Snipe	12	9-22-71	12	9-22-7	1	12-17-71		0	0	350
Sora Rail	1	9-15-71	1	9-15-7	1	9-15-71		0	0	30
Greater yellowlegs	8	9-22-71	30	9-29-7	30	9-29-71		0	0	60
Herring gull	1	9-18-71	1	9-18-7	1	9-18-71		0	0	1
Kill deer	10	9-2-71	35	10-15-7	2	12-1-71		0	0	250
	10	l Neiess	700	11-1-11	10	7		6		Jan Co.
		1		(over)			1	l		

(1)		(2)	(	3)		(4)		(5)		(6)
III. Doves and Pigeons:  Mourning dove White-winged dove	10	9-2-71	300	11-5-71	20	12-29-71	0	0	0	8,000
72 TO 1		Sec 1.				J Internal		0		- 3
IV. <u>Predaceous Birds</u> : Golden eagle		14						7		2
Duck hawk Horned owl	1	12-10-71	1	12-10-71	1	12-10-71	0	0	0	30
Magpie Raven		- 1241 [439				** * .				3,6
Crow	1	9-6-71	30	11-10-71	6	12-30-71	0	0	0	200
II Sharakana Salam yan Zaren										
										7
						Reported	by			

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconiiformes and Gruilformes)

II. Shorebirds. Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

Estimated total number of the species using the refuge <u>during the period</u> concerned.

INT.-DUP. SEC. ASH., D.C.

59317

## Waterfowl Hunte Kill Survey

Refuge threat their

Year 198 77

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est.No. Hunters	(9) Est. Total Kill
			(THUS R FUCE IN CLOUDED TO MATHEFORD BUSTING)					
-								
						7		
						*		
						*		
						2		
_					11	,		
*	- 1						*	
					_			
	-							
			(over)					

## UPLAND GAME BIRDS

Refuge Muscatatuck NWR Months of January 1 to April 30 , 19 71

(1) Species	(2) Density		(3) Young oduced		(4) Sex Ratio	ALED AB T Text C EJ A	(5) Remove		(6) Total	(7) Remarks			
Common Name	Cover types, total acreage of habitat	Acres Per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.			
Bob White Quail	New habitat has been acquired, but has not been cata- gorized	61/2	0	0	No census	0	0	0	300	AND MAINTENANCE (F)			
ter la	i many agencies and	, <del>17</del> 321	period or	U LIN	LEWING WILL	8643		199	AT A T SE	AUGUS ASS AUG			
	repart period	117 (34)	71- £ -	10.	MOSE I IN S	112	T or I this	La .	or da. Li	a contract of			
min in East	period init seasons	Tarajet La pri	20 254 2154 0	uh eg	der en en Lymany in	9804	nomin d sul	013U. 530 F	te tami ind	DATE OF			
ebatoni t	erel in markey cla	V112-16-20		J TRI	gog mitters?	5 (2) 1 / pt		JOS	en seen Ligh Linky pass	APTARES (Y)			
1				V þe	er vi simis	, les	evoo.	L Ele	g Pull co su	de roge mandor gante.			
							1	-					

### Form NR-2 - UPLAND GAME BIRDS\*

(1) SPECIES: Use correct common name.

Applies particularly to those species considered in removal programs (public hunts, etc.).

Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a

expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of

sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\*Only columns applicable to the period covered should be used.

Refuge Muscatatuck NWR Months of May 1 to August 31 , 1971

(1) Species	(2) Density		(3) Young oduced		(4) Sex Ratio	eio d osin	(5) Remova	ils	(6) Total	(7) Remarks			
Common Name	Cover types, total acreage of habitat	Acres Per Jaquin Numper Spoots of Sp		Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.			
ob White Quail	New habitat has been acquired, but has not been catagorized	61/2	3	35		0	0	0	425				
-21427 0	stavas trums une s						or to	Tech	di Bellahiti W Silikiya	a dentale cated (5)			
	ao ambo abolini — includa data on	بدخادر د	really .		ally or gir	n en l	ay ile . pld	Ligs	ample els	(* 141. 158 (*)			
	Boineg Unotres	<b>32 - 1</b> 3	5 - La	i ner	CONTRACT IN	e gj	79/0	m Le	tas a tay tho	SEMENATE (C)			
- Minda	ol yaz ślat . Lo tregani woczes nistasu	ST L			artist latir as a complete gra	160 Bár	pener to en	: 1 2/1 : 1 1/2	u ulienite den bis	L DATES AND			
	nik .vevim ni ban	9793 #8   [54]		Last I	Liber on a	elde	i Bibli	- 405	Library todd	CONTACT OF			
					est ad hip.c	s de	reves	ho75	e to the pe	Discilique aurikles glass			

### Form NR-2 - UPLAND GAME BIRDS\*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.).

Detailed data may be omitted for species occurring in limited numbers. Density to be

expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of

sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in repre-

sentative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other

species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include

resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include

other pertinent information not specifically requested.

<sup>\*</sup>Only columns applicable to the period covered should be used.

## UPLAND GAME BIRDS

	Refuge Musestatuck NWR	Months of Sept. 1 to Dec. 31 , 19	71
--	------------------------	-----------------------------------	----

(1) Species	(2) Density		(3) Young oduced	o sai qui s Ma ua	(4) Sex Ratio	rimo La T Duvi	(5) Remova	ıls	(6) Total	(7) Remarks		
Common Name	Cover types, total acreage of habitat	Number broods observed Estimated Total		Estimated Total	Percentage	Hunting	For Re- stocking		Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.		
ob White Quail	6,000 acres of fore edge green legume agricultural fields and reverting agricultural lands		not end		atales ad bo	unde uboo estid	NA	NA	s 400 quas s a-jamijaš s avidasnas	restante nater		
gaddo i	e sans soulant of	, p.//div.s	enc. V	ring		Naci Pa	u aal	i gari Lilawa	TT Wallade	OLDAN KEL	(6) .	
	colony images	and End	esidir Nerwi	naeri y	rogerau roas	0.1	a dina	r Lei	Indiente to	- ELTA VOIKCE!		
shulo	perton This may i g certain seasons.		anter e		1		a sul	dauta g nba	J žetamiteZ Mi tnebicev	CANDI		
eluliat c	sead in energy. Als	V.D. OFF			gog stammed in not speci	E = 2 E = 80	pyst acl. i	bord sper	Indicato me Sther pertu	REMARKS:		
				, In	ад ві графі	Liet	ovos	bo Fra	g an' ur el	y columns signs ab		
2												
									b			

### Form NR-2 - UPLAND GAME BIRDS\*

(1) SPECIES: Use correct common name.

(2) DENSITY:

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

<sup>\*</sup>Only columns applicable to the period covered should be used.

Refuge Muscatatuck NWR

Calendar Year 1971

(1) Species	(2) Density	(3) Young Froduced			ove (it)	ls			(5) sses	In	(6) troductions	(7 Estim Total Popul	(g) Sex Ratio	
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-	Sold	For Research	Predation	Disease	Winter	Number	Source	At period of Greatest use	As of Dec.	
Thite tail deer	6,000 wood bottomland and upland hardwood	30	NA	NA	NA	NA	Not	en	oggh d	ata	NA NA	120	120	
anoijavr e area	edd to the based of blood again	* Suffice	179	80 L	ali ali	mas :	di.	336	e in a	bes to me	yense uzaka ahould be u and soonse			
	.eyaTa	t no be out	11.7	3m	ov	to n	dan	п 1	#30# ]	19 2 80	tiel . UECU	YUUNG PRO	(E)	
	daring the year.	women with	30.	an I	(SAR)	mi -	9da	BE	Latet	1 7 18 2	15aï	REMINE	(4)	
al	essal lates total hessal	an eftal	974	10	ingi Juni	197 J	gro t	n l	e ole	d w	dage	RMSGOT	(9)	u.
	When stock was secured.	eri zene.	23.		O.S.E	a bru	1 18	de	6 973	SURS	rtal seko	CTOHER THE	132	
e5 1	to believe at period of	an appealur	1	70 1	ot.	eluqi Is t	e i	85 k 5/18	eiras boude	edi Teel	evio :	POTAL DESCRIPTION	173	
anni à	of each species as determin	femmles	ne vo:	1. re	STIS.	o aga	រៅ គួច ២ - គ	o ra	the p	-jms	ibni feld	olias kee	(8)	

Remarks: Survey method, casual observations and hikes over snow observed tracks.

## Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMCVALS: Indicate total number in each category removed during the year.
- (5) LCSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE
  POPULATION: Give the estimated population of each species on the refuge at period of its
  greatest abundance and also as of Dec. 31.
- (8) SEX RATIC: Indicate the percentage of males and females of each species as determined from field observations or through removals.

Refuge Muscatatuck NWR

Year ending April 30, 1971

(2) Density						- 1120	D			Furs			(5) Total
			lanck I me				Shar	e Trap	ping	nge	ted		Popula
Cover Types & Total	Acres Per Animal	Hun ting	Fur Harvest	Predator Control	For Re- stocking	For Re-	Permit Number	Trappere	Refuge	Total Ref Furs Ship	Furs Done	Furs	tion
New habitat has been acquired, but has not been catagorized	31/2	0	0	0	0	0	0	0					700
	Cover Types & Total Acreage of Habitat  New habitat has been acquired, but has not been catagorized	Cover Types & Total Acres Per Acreage of Habitat Animal  New habitat has been acquired, but has not been catagorized	Cover Types & Total Acres Per Animal  New habitat has been acquired, but has not been catagorized	Cover Types & Total Acres Per Animal Remarks R	Cover Types & Total Acres Per Animal Manual	Cover Types & Total Acres Per Animal Manual	Cover Types & Total Acres Per Animal H ZH JO C O O O O O O	Cover Types & Total Acres Per Animal M Acres Per An	Cover Types & Total Acres Per Animal E E E E E E E E E E E E E E E E E E E	Cover Types & Total Acres Per Animal Acr	Density  Removals  Disposition of Furs  Cover Types & Total  Acres Per Animal H H H H H H H H H H H H H H H H H H H	Cover Types & Total Acres Per Animal Edit Number Living New habitat has been acquired, but has not been catagorized  Removals  Disposition of Fars  Share Trapping  Permit Living Permit Number Number Living Permit Number	Cover Types & Total Acres Per Animal E Permit Removals Share Trapping Spadding Spadding Share Trapping Spadding Share Trapping Spadding Share Trapping Spadding Share Trapping Spadding

REMARKS:

Reported	ру	
----------	----	--

- Form NR-4 SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)
- (1) SPECIES:

  Use correct common name. Example: Striped skunk, spotted skunk, shorttailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc.
  (Accepted common names in current use are found in the "Field Book of North
  American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals
- of the Northeastern United States" by David Starr Jordan.)

  (2) DENSITY: Applies particularly to those species considered in removal programs.
  - Detailed data may be omitted for species occurring in limited numbers.

    Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
  - REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-17t Form NR-4 (June 1945)

## SMALL MAMMALS

Refuge Muscatatuck NWR

Year ending April 30, 1971

(1) Species	(2) Density	50 37	(3) Removals				(4) Disposition of Furs						(5) Total	
								Shar	e Trap	rapping 0 7		ted		Popul
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hun ting	Fur Earvest	Predator	For Re- stocking	For Re-	Permit Number	Trappers	Refuge	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	tion
Cottontail Rabbit	New habitat has been acquired, but has not been catagorized	31/2	60	0	0	0	0	0	0	0	0	0	0	900
	term beld:			T 1	- 0 To	ij t	100							
	nut lus traces a cineres			-Da	. 75	N9 9	en ya	131 17						
	lodaya ayya ay xaadd Laldaaa aasaa aasaa a		1 1 1	1,49			, 5 "	18 . 1 925						
	net so since be and		1											
	TO Serie vicese his		-98.	Eost	9.9	9774	2875							
	1		( )	-	ta tino	m d'e		- U-E	10.0		10.34	COSSE	FIFT	
	ers estered to agente		1 -	17.00				3.07						
	and the second and areas		barri I	17	17.1			7-07012		7 70	11111	rego Je		
	execute and the first trains		r tah			De th		0.01801			1			
	ded bagariast sel mys			5 10	101	100		Segmus.	99					
	TO AMOUNTALIZABLE DE EN					11915	Bruns	201 7 119	115					
<ul> <li>List removals by</li> </ul>	Predator Animal Hunter	C-1 D I I		-	1		T-01	A T. HOM						

REMARKS:

Reported by

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES:

Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY:

Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS:

Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR:

On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION:

Estimated total population of each species reported on as of April 30.

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

Refuge Muscatatuck NWR

Year 19, 71

Botulism	Lead Poisoning or other Disease
Period of outbreak	Kind of disease
Period of heaviest losses	Species affected
Losses: Actual Count Estimated	Number Affected Species Actual Count Estimated
(a) Waterfowl (b) Shorebirds (c) Other	- Species Result Counts Estimated
Number Hospitalized No. Recovered % Recovered	Number Recovered_
(a) Waterfowl	Number lost
(c) Other	Source of infection
Areas affected (location and approximate acreage)	Water conditions
Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.	Food conditions
Condition of vegetation and invertebrate life	Remarks
Remarks No disease was observed	

3-1757 Form NR-7 (Rev.June 1960)

Refuge Muscatatuck	Year	1971
--------------------	------	------

	(Seed			s and Re cks, tre			Plantings (Marsh - Aquatic - Upland)								
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Lo		
											The state of the s				

(1) Report agronomic farm crops on Form NR-8 (2) C = Collections and R = Receipts (3) Use "S" to denote surplus (btal acreage planted: (Marsh and aquatic	Remarks: No charge was made for collecting mushrooms, persimmons or nuts. The public was given full access for this purpose.  None of the above were collected for storage by refuge personnel.
Hedgerows, cover patches Food strips, food patches Forest plantings	

# Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge	-Musca	tatuck	WR		County		Jackson			State _	Indiana		
Cultiv	rated		ittee's Harvested		Government'		or Retur	en_	Total		en Manure, er and Water	·-	
Crop Grow		Acres	Bu./Tons	Acres	Bu./ Tons	Acres	Bu. /To	ons	Acreage Planted		Browsing C and Kind	rops	Total Acreage
Eggeman	corn	63		9			de ele		72	Gra	ss Legume		18
Ray	corn	31		10					41	5 0			
Hoevner	corn	40							40	Gra	in Sorghum		20
Kent	corn	30				2	LIL :		32	Gra	ss Legume		28
Lenz	corn	45		15			2 4 4	13	60	200			
McDonald	corn	15		5				5	20	78			
Maschino,l	.corn	20							20	100			
Taskey	corn	15	長祖 監督	5				2	20				
		8						2		Fall	low Ag. Land		1,000
No. of Pe	rmittees	5	Agricultura	l Opera	ations	3	Haying	Oper	rations 1	none	Grazing C	perat	zions non
Hay - Imp (Specify			ons ested	Acres	Cash   Revenue	Gra	zing	Numb Anima		AUM'S	Cash Revenue	ACF	EEAGE
None	5† 5a†c					1. Catt	le	Nor	ne	EA MUS			
		Tropia A	785		B E B B	2. Othe	r	Nor	ne	Control of the contro	DATE OF THE PARTY		
140									eage Unde				361
Hay - W	<i>l</i> ild					2. Acre	age Cult	ivate	ed as Se	rvice C	peration		10

# DIRECTIONS FOR PREPARING FORM NR--8' CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only thenumber of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvesed column.

<u>Total Acreage Planted</u> - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops Specify the acreage kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

<u>Hay - Improved - List separately the kinds of improved hay grown.</u>
Annual plantings should also be reported under <u>Cultivated Crops</u>, and perennial hay should be listed in the same manner at time of planting

Total Refuge Acreage Under Cultivation Report total land area devoted to agricultural purposes during the year.

# Fish and Wildlife Service Branch of Wildlife Refuges

## CULTIVATED CROPS - HAYING - GRAZING

Refuge	Muscata	atuck			County	Jer	nings	2	_ Sta	te	Indiana	
Cultivated			ttee's Harvested		Government' arvested		or Retur rvested	Tota	1	Cover	Manure, and Water-	
Crops Grown	Ac	cres	Bu./Tons	Acres	Bu./ Tons	Acres	Bu. /To	Acrea ns Plant			Browsing Crop and Kind	s Total Acreage
y co	rn	55		18			in the	73	4		6 B B	
schino, G. co	rn	48				2		50	3	Grass	Legume	20
ett co	rn	9		3				12				
nt co	rn	30						30	#	Grass	Legume	25
rge co	rn	12				6		18				
schino,L. co	rn	26						26		Grass	Legume	23
sting co	rn	36		-		1	= = =	36	-	Grass	Legume	18
nroe Gr. Sorgh	ium	21	E. 8 4 6			11	7 3 5 5	32	10	Grass	Legume	10
illing co	rn	20	ray it t	1 1 E		Wellon, .	Manapera Ma	20	BLA - BE	Fallo	w Ag. Land.	500
No. of Permit	d		gricultura	l Opera	cash Revenue		zing	Operation Number Animals	s N	S	Grazing Oper Cash A Revenue	ations N
None None		nai ve	steu	ACTES	<u>Ite venue</u>	1. Catt		None	G 1		E & E	
						2 10 3	8883		2	210		
	8		5 4 0		REES =	2. Othe	r; B # B	None		3	E E	*
						1. Tota	l Refuge	Acreage U	nder (	Culti	vation	393
												272

# DIRECTIONS FOR PREPARING FORM NR--8' CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only thenumber of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. <u>Unharvested</u> Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under <u>Bushels Unharvesed</u> column.

<u>Total Acreage Planted</u> - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops Specify the acreage kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

<u>Hay - Improved - List separately the kinds of improved hay grown.</u>
Annual plantings should also be reported under <u>Cultivated Crops</u>, and perennial hay should be listed in the same manner at time of planting

Total Refuge Acreage Under Cultivation Report total land area devoted to agricultural purposes during the year.

## REFUGE GRAIN REPORT

(1)	(2) On Hand Beginning of Period	(3) Received	TOTAL		GRAIN D	(5) ISPOSED OF		(6) On Hand	(7) Proposed or Suitable Use*			
Variety*		During Period		Transferred	Seeded	Fed	Total	END OF PERIOD	Seed	Feed	Surplus	
Yellow Dent Corn	200	4,250	4,450 bu			2,500	2,500	1.950 Bu		1,950	000	
						Ass.						
						api produ						
VIII.												
(8) Indicate shipping	or collection	points	NA									
(9) Grain is stored at	Grain st	orage_are	as located	around	the Refug	e						

<sup>\*</sup>See instructions on back.

## REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

## TIMBER REMOVAL

Refuge Muscatatuck NWR Year 195.71.

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
	ALL OF THE T	IMBER REMOVI	ED FROM THE 1	USCATATUCK NWR	DURING 19	71 WAS FR	OM PRIVATE IN-HOLD	INGS OR
	THAT TIMBER	WHICH HAD B	EN RESERVED	BY THE AGREEMEN	T FOR PUR	CHASE WIT	H A FORMER LAND OW	NER.
							× .	

Total acreage cut over NA	Total income none
No. of units removed B. F. Cords Ties	Method of slash disposal
	900

INT.-DUP. SEC., WASH., D.C. 36103

(1)

ANNUAL REPORT OF PESTICIDE APPLICATION

(3)

Refuge

(6)

## Muscatatuck

P	roposal	Number	141	Reporting	Year

(8)

(9)

(7)

INSTRUCTIO	NS: Wildlife Refuges Ma		none	1971				
Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of

NO PESTICIDES WERE USED ON THE MUSCATATUCK NWR DURING 1971

(4)

(5)

Charles	l Sch	//	
Charles E. Sch	effe, Refuge	ger	

(2)

<sup>10.</sup> Summary of results (continue on reverse side, if necessary)